

## Light and Snow Inspired Artist

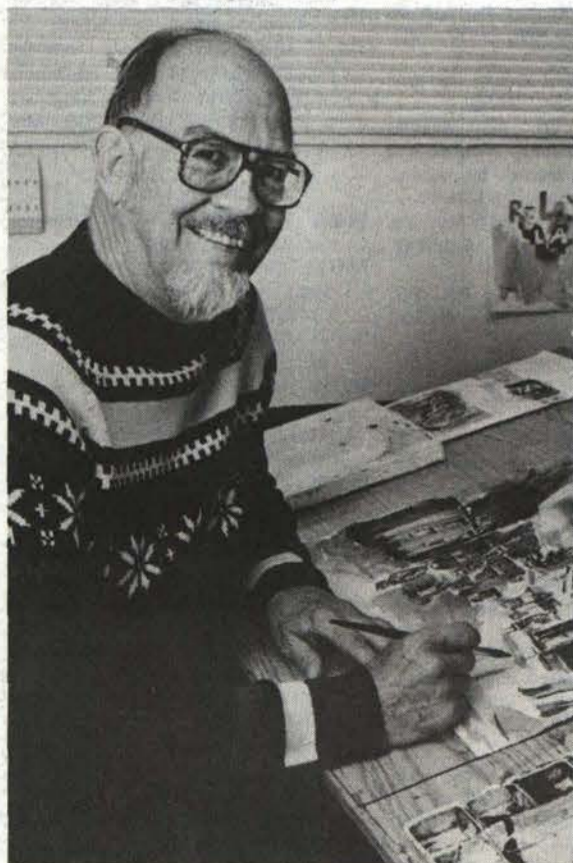
The watercolor reproduced on this year's Christmas edition of LAB NEWS was done by Doug Ballard, who retired from the Labs in 1983. The scene shows the original Our Lady of Guadalupe church on Griegos Road in the North Valley after a heavy snowfall. Doug calls it "Clearing Skies."

"Occasionally, I come across a scene that I find truly inspirational," says Doug. "This was one of those times. The storm front had passed, and the sun broke through the clouds. The sunlight flowing from the roof on down the adobe wall and out the path to the church created a natural passage for the eye to follow. I was in the right place at the right time."

The watercolor, painted during the winter of 1984, took second prize in the annual New Mexico Watercolor Society show in September that year. Our Lady of Guadalupe church, now a private home, dates back to the time when the old village of Los Griegos was a thriving community.

Though he has tried other media, Doug prefers watercolor because of the effects he can get with it. And he's partial to winter scenes. "There's a lot more color contrast at that time of year, for one thing. One of my favorite sites, Taos Pueblo, is most beautiful during the winter months."

Doug's work has taken prizes in many regional shows, and his art is exhibited in galleries in Albuquerque, Taos, Ruidoso, Carlsbad, and Arlington, Tex. His work also appeared on the LAB NEWS cover in December 1981. He paints "almost" full time now, though he also serves as a nondestructive testing (NDT) consultant from time to time. (He was supervisor of the NDT division at Sandia before his retirement after 35 years at the Labs.)



DOUG BALLARD, Christmas cover artist



Merry Christmas &  
Happy New Year from the  
LAB NEWS STAFF!

*Phyllis, Denise, Barry, & Bruce*

 **LAB NEWS**

# Antojitos

## Divestiture Sought

### Justice Alleges SCE Monopoly

WASHINGTON -- The Justice Department is taking immediate steps toward divestiture of S. Claus Enterprises (SCE) on grounds that its toy manufacturing and distribution network violates "most of the anti-monopoly regulations on the books," said Department spokesperson Helen Waite.

The first of those steps is apparently a suit, made public today, alleging that SCE has an unfair advantage over potential competitors in the field. SCE, the suit declares, is a privately owned corporation with all stock held by an eccentric recluse, S. Claus. American corporations, says the suit, have thus far not been able to crack the foreign-based monopoly, especially its worldwide distribution system.

The suit provides evidence, some apparently from insiders, some from widely accepted rumor, that SCE is both a vertical and horizontal conglomerate. That is, it controls toy manufacture from design concept through prototype development and testing to mass production, including tooling and raw materials. Linked to this vertical component is a horizontal one: a distribution network that covers, according to the suit, the entire globe.

"We at Justice thought AT&T was bad," said Waite in an apparent reference to the successful suit brought by Justice to force that giant telecommunications corporation to divest its manufacturing and R&D capabilities--Western Electric and Bell Labs--from its distribution network--the phone companies.

"Frankly, we're appalled at SCE executives. You'd think, from their refusal even to discuss the issues involved, that they believe they have a right to prevent their competitors from utilizing the SCE distribution network!

"Well, they've got another think coming," added Waite. "We're hitting them with a cease-and-desist order, effective as of December 24, that will prevent them from carrying out their fly-by-night operation unless they submit, prior to that date, viable plans for prompt and orderly divestiture.

"Future generations of Americans will someday thank us for ensuring that Pa Claus [as SCE is known by many] is compelled to accept competition in this most necessary of holiday activities, equitable and efficient gift distribution. And competition is certain to provide consumers with much improved services."

Officials at SCE, reportedly a Canadian or even Russian corporation, were unavailable for comment. ●BH

\* \* \*

Feliz Navidad y Próspero Año Nuevo.

## Sympathy

To John Shelnett (1154) on the recent death of his father in an automobile accident in Georgia.

To Barry Schwartz (6313) on the death of his grandmother-in-law in Albuquerque, Dec. 3.



# LAB NEWS

Published Fortnightly on Fridays

**SANDIA NATIONAL LABORATORIES**

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO  
LIVERMORE, CALIFORNIA  
TONOPAH, NEVADA  
AMARILLO, TEXAS

Sandia National Laboratories is operated by Sandia Corporation, a subsidiary of AT&T Technologies, Inc., and a prime contractor to the U.S. Department of Energy.

BRUCE HAWKINSON, Editor  
PHYLLIS WILSON, Writer  
GERSE MARTINEZ, Assistant Photographer  
BARRY SCHRADER, Livermore Reporter

Member, International  
Association of Business Communicators



GOLD MEDAL for the outstanding paper presented at the 7th International Conference on Ion Beam Analysis in Berlin last July went to Tom Picraux (1111). Klaus Wittmaack of West Germany presented the medal during a recent visit to Sandia. Tom's collaborators in the studies underlying the paper, entitled "Channeling Analysis of Strain in Superlattices," include Bob Biefeld (1154), Ralph Dawson (1141), Wei-Kan Chu and Bill Allen (University of North Carolina), and Jim Ellison (UNM).

## Take Note

Bruce Barnaby (7242) recently learned from the American Nuclear Society that a paper he submitted to the Society's White Paper Contest received an honorable mention as one of four runners-up. The White Paper competition was inspired in part by the ABC-TV special entitled "The Fire Unleashed," felt by some ANS members to be biased against the nuclear sciences. Rather than critique the program, contest papers were to emphasize the positive aspects of U.S. nuclear science programs. Bruce's paper, "What Good Is a Neutron Baby?," was one of 51 submitted to ANS. This paper and others in the top 10 will be sent to local ANS sections and student branches as resource material for future projects such as speaker kits, articles, and audiovisual productions.

\*\*\*

Ken Miller, Dean Thornbrough, and Phil Mead (all 400) were notified last week that three issues of *Sandia Technology* submitted to a contest sponsored by the Kachina Chapter of the Society for Technical Communication received an award of excellence in the "Whole Periodicals" category. Dean is supervising editor of *Sandia Technology*, published periodically by the 400 organization. Phil is publication editor, and Ken is art director.

\*\*\*

Researchers — Did you know that an up-to-date LAB NEWS index is available for tracking down articles that have appeared in this erudite publication? The staff (all two of us) will be glad to assist you in your search for that information tidbit if you can send us some key words (person's name, project name, organization number, etc.) in writing. Or drop by the LAB NEWS office in Bldg. 814. No phone calls, please.

\*\*\*

Computer-processed images of Halley's comet produced with the help of Gary Mastin (2644) appeared recently on the front page of the *Albuquerque Journal*. Gary was asked by Prof. Jack Burns of UNM's Astronomy Dept. to assist in processing the comet images, which were produced by a newly upgraded telescope at UNM's Capilla Peak observatory. (Currently UNM does not have this kind of processing capability, though it expects to soon.) During computer processing, color coding was added to highlight differences in light intensity from the center to the outer edges of the coma surrounding the comet's head. This makes the astronomers' analysis job a lot easier.

\*\*\*

Steve Passman (1533) has been elected to the Board of Directors of the Society of Engineering Science. Steve will serve a three-year term on the Board beginning Jan. 1.

\*\*\*

Retiring this month and not shown in LAB NEWS photos are Helen Agats (7474), Marvin Beckett (6325), Paul Chavez (7482), Wesley Kimbrel (7812), Betty Lacher (7135), Theodore Reed (2543), John Smelser (7525), and Richard Tyler (3461).

\*\*\*

To reduce the crease in the cover painting, cover the crease on the "wrong" side (pages 2 and 11) with damp towel, then iron the towel at low or medium heat.



A B-52 DWARFS technicians as they prepare to load several B28s for a flyaround test.

## Aircraft Compatibility: No Room for Error

To some people, the term "aircraft compatibility" refers to how they got along with their seat mate during that last plane trip. But that's not what it means to Bob Sonnenberg, supervisor of Aircraft Compatibility Division 5123.

"It's our responsibility to assure that every U.S. nuclear weapon carried on an aircraft, be it an Air Force, Navy, or NATO plane, interfaces properly with that aircraft," says Bob. "That means we're looking at mechanical fit, electrical functions, separation characteristics, and many other features of both the bomb and the aircraft.

"We don't do this job alone, by any means," he continues. "The responsibility is shared with many other organizations at Sandia — weapon project groups; quality assurance; the aerodynamics, test, and instrumentation people, just to mention a few. It's really a team effort."

Bob points out that the team effort isn't just inside the Labs; all of the compatibility tests and evaluations, for example, are coordinated through local DoD agencies — the Air Force Weapons Laboratory and the Naval Weapons Evaluation Facility. And tests are conducted jointly with the DoD and its aircraft contractors.

Aircraft/weapon compatibility studies are necessary for several reasons. In this age of constantly changing technology, for example, new aircraft enter the operational fleet, new bombs enter the stockpile, current aircraft are modified, current stockpiled bombs are retrofitted, or a weapon system enters a new operational phase. In each of these cases, the engineers and technicians in Division 5123 get involved.

The same people also get called on to inspect compatibility features of certified operational weapon systems that have not been tested for a long time. Bob says, "It's kind of like checking out an old car that hasn't run for a while. You want to make sure all those parts, even though they haven't been used for some time, will do exactly what they're supposed to do if the time comes. In fact, safety, reliability, and readiness are the primary concerns in *all* our activities."

As for most jobs, a certain set of special tools is needed for this one. "For example, we have a 'stockpile' of 68 CTUs [Compatibility Test Units] for use in our testing program," Bob says. CTUs are replicas of aircraft-carried weapons, minus the nuclear physics package; all other features — electrical system, aerodynamic characteristics, instrumentation, etc. — match the real thing. These test units are used throughout the compatibility testing program.

Extensive testing is necessary for every aircraft/weapon compatibility study. Ground tests are used to look at mechanical "fit" — aircraft space available vs. bomb size, for example — and other features such as electrical function (how the aircraft's control system interrelates with the bomb's electrical system). Static drops on the ground are used to determine how the plane's explosively driven bomb ejectors will posture the weapon as it enters the airstream around the plane. The drops also indicate whether a weapon's parachute (if there is one) might become entangled with the airplane's fuselage or control surfaces.

Ground testing also involves wind tunnel tests to study the effects of an aircraft's

flow field on a weapon's aerodynamic characteristics.

Next in the testing program come flyaround tests — an instrumented CTU is carried aloft on the plane to check out vibration levels on the bomb's critical components. "We program what we call a 'Max Q' flight profile, which means we fly the plane in a manner that will subject the CTU to the worst aerodynamic environment it will likely experience," Bob says.

Also, flight tests with a specially instrumented CTU allow correlation between flight test and ground test electrical interface data. Load measurements are taken on higher performance aircraft to determine

*(Continued on Page Four)*

### Fusion Possible in Laboratory?

## First PBFA-II Shot Successful

Someday, Sandians may look back on the successful firing of PBFA-II last week as just another milestone in the eventual triumph of the theory and practice of inertial confinement fusion. Today, that's a few decades — and many, many more experiments — down the road.

Nevertheless, the researchers in Pulsed Power Sciences 1200 believe PBFA-II (Particle Beam Fusion Accelerator II) is the first machine ever built that has the potential to achieve thermonuclear fusion in the laboratory. (Such fusion now occurs only in stars and in nuclear weapons.)

The fact that the first shot came off successfully testifies to the new accelerator's concept, design, and construction. The shot marks the end of PBFA-II's Phase 1, construction. Ahead lie Phase 2, precise characterization of the accelerator's capabilities; Phase 3, further development of the lithium-ion source of PBFA-II's beam; and Phase 4, the campaign to perfect the deuterium-tritium target pellets.

Some of these phases may take years to complete — ICF, or inertial confinement fusion, (whether dependent on intense beams of ions, as in PBFA-II, or on beams of laser light) is a marriage of pure theory and expensive hardware about which the textbooks have not yet been written. "Even last month's SAND report is likely to be obsolete next month," notes Don Cook, PBFA-II project scientist and manager of Fusion Research Department 1260.

The constantly changing nature of the state of the ICF art is reflected in the "fast-tracking" system used to construct PBFA-II over the last three years: design research

continued during the construction process, which made it possible to modify yet-uninstalled portions of the machine without holding up progress on construction.

"That's no simple task," observes Gerry Barr, manager of Plant Engineering Planning and Services Department 7860 and manager for the PBFA-II project. "From the R&D point of view, you try to remain as flexible as possible throughout construction like this. But eventually you have to freeze the design to meet construction schedules.

"Sometimes you have to take some risks, go with some guesses on the part of the researchers. But they were right 80 percent of the time. And we all gained confidence in our ability to recover from any wrong guesses, to solve whatever problem arose.

"We came in seven weeks ahead of schedule and on budget." Gerry concludes. "And the machine worked. I'm proud of that — and of all the people who put in long hours to make it happen."

Last week's shot was designed to deliver 70 percent of its theoretical power capacity (100 TW, or trillion watts) and to do it in some 50 ns, or billionths of a second. That's fast — a nanosecond has the same relation to a second that a second has to 32-plus years. It will be at least a year before 100 TW power levels are likely to be routine.

PBFA-II power comes from four layers of nine modules each. Each layer is arrayed like the spokes of a 108-foot-diameter wheel. And each module, containing capacitors, switches, and transmission lines, converges on a central hub. That hub is a vacuum

*(Continued on Page Six)*

## The Challenge: 60 Quadrillion Configurations

Bob Sonnenberg talked some mind-boggling figures when he told us about possible load and load/release configurations that are considered during aircraft compatibility testing. For starters, if we look at all authorized bomb load/release combinations on all Air Force, Navy, and NATO aircraft weapons systems, we come up with a total of 59,604,698,956,556,678 load/release configurations. That's more than 59 *quadrillion*, folks! Or, for you engineers out there, it's approximately  $59.6 \times 10^{15}$ .

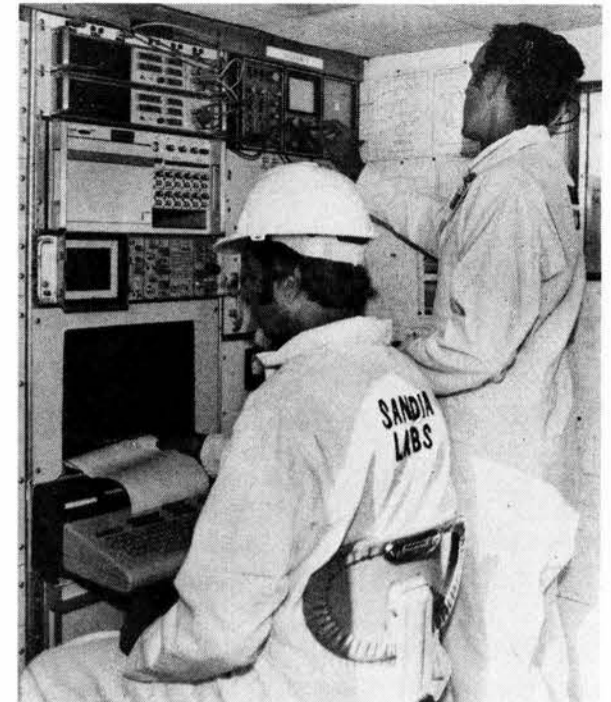
Aw, c'mon, Bob. There's no way you can actually *test* all those possible combinations, is there? "No — we don't pretend to, nor do we need to," he says. "We test a small number of the most significant configurations. We then analyze the actual aircraft and bomb [CTU] test data and compare them to similar data obtained over years of testing. Also, we use these real hardware data to verify that our computer models and analysis capa-

bilities are correct.

"We combine all this information — real hardware data, previously obtained similar data, and computer analysis results — with our years of aircraft/weapon experience to determine configuration compatibility. If we did not use this approach, we'd have a nearly impossible task.

"Take the FB-111A, for instance. We calculate that 19,593 load/release/weapon combinations are possible on that aircraft. If we tested two configurations a day, 365 days a year, it would take us almost 27 years to test one aircraft and all its weapon combinations. Fortunately, we don't have to spend that kind of time on one aircraft; we're confident that our test and analytical procedures developed over the years will do the job."

Currently, he says, his group studies possible combinations involving 23 aircraft, 14 weapons, and 33 aircraft weapon controllers. •PW



BOB PREW (left) and Ken Payne (both 5123) operate an AMAC simulator during a ground test to check a weapon's electrical system. The simulator is in a specially instrumented trailer that can be transported to various test sites.

(Continued from Page Three)

## Compatibility Work Allows No Quick Fixes

the loads passed through the plane's suspension system into the weapon.

Weapon drop tests — mostly at Tonopah Test Range — complete the compatibility testing regimen. These drop tests — the "final exam" on software and hardware — verify that the complete weapon system will function as designed. Data obtained from air drops and flyaround tests are compared to the ground analysis, and the differences, if any, are reconciled. Frequently the air-dropped weapons are JTA (Joint Test Assembly) units — again, minus the nuclear physics package.

"We're required to conduct compatibility evaluations on every aircraft-carried nuclear weapon in the U.S. arsenal," Bob says. "The ground tests, flyaround tests, and the system drop tests give us a fix on the performance of the weapon's hardware at initial deployment."

Another useful tool for the compatibility engineers is the Aircraft Monitor and Control (AMAC) simulator, which duplicates an aircraft's electrical hardware in a laboratory setting. Weapon test units in the lab respond to AMAC controls much as they would in a real aircraft. Sandia has an AMAC simulator for most operational aircraft in the inventory.

"We're talking about simulating incredibly complex aircraft," says Bob. "Planes like the B-1, F-16, and F-15 are all computer-based. To give you an idea of what we're dealing with, the B-1B's computer-based aircraft control system has a computation and processing capability similar to that of seven VAX 11/780s."

Sandia-designed weapon simulators are used in conjunction with AMACs in lab testing. They simulate all bomb and pullout cable electrical logic features, and duplicate a real weapon on board an aircraft. Thus, in a relatively confined

laboratory setting, a weapon simulator or a "real" weapon (CTU) can be plugged into an AMAC simulator for a specific aircraft to obtain data for an aircraft/bomb compatibility analysis.

Now under development is a new instrumentation system to measure electromagnetic environments at the aircraft weapon locations. An electromagnetic (EM) measurement system recorder installed inside a weapon test unit will measure the electromagnetic energy impinging on the unit, and data from the recorder will help determine effects of the energy on bomb components. The EM measurement system can be used in both air and ground tests. "The system will be a useful addition to our testing capabilities, and should be available in approximately a year," says Bob.

When a new-high performance aircraft is proposed, Bob and his division get involved long before compatibility testing

begins. "We work as advisors all the way through the aircraft design, development, and testing program," he says. "That ensures that our concerns on weapon interfaces are met in the most inexpensive way possible. An aircraft development effort runs approximately ten years. Halfway through this period, the aircraft/weapon compatibility testing work generally starts — and that's likely to be a five-year effort."

It's obvious, then, there are no quick fixes in this activity. All weapon systems are subjected to a whole battery of mechanical and electrical tests. Every possible aircraft/bomb combination is reviewed, which means looking at an incredibly high number of possible load/release configurations (see box). Tests and analyses are run on a relatively small number of weapon configurations; analogy is used to evaluate the remaining combinations. Conservatism is the byword; there's no room for error.



JERRY ALLEN (2312) recently received a certificate of appreciation and gift from the YWCA of Albuquerque in recognition of the many volunteer hours he spent training Y employees to use their new computer system. Here, he's thanked by Gail Reese, president of the YWCA board. Jerry volunteered his help through Sandia's Volunteers in Action (VIA) program.

## Christmas Traditions 'Back Home'

Down with visions of sugarplums. Up with visions like these: Shopping for Christmas in the City of Lights . . . getting your gifts on St. Nicholas Day (Dec. 6) . . . riding over snow-covered hills in a one-horse open sleigh.....

Three visiting researchers at the Combustion Research Facility don't have to make up such visions — they have vivid recollections of the Christmas season back home. In the case of Philippe Magre, home's a suburb of Paris; for Jaap Hoornstra, the Netherlands, and for Bjorn Magnussen, Trondheim, Norway.

Philippe, with his wife Eva and two-year-old son Clement, arrived in Livermore in August for a year's research mission at Sandia. A mechanical engineer from ONERA (a government aerospace research facility comparable to America's NASA), Philippe is studying the application of laser diagnostics to flames. He describes Father Noel with his long white beard, his red gown, and his woven straw bag full of gifts for children. Legend has it he even comes down the chimney to leave toys on Christmas Eve.

"A favorite tradition is the Christmas feast: cooked goose or turkey with roasted chestnuts, a delicacy made from goose liver, and a special cake — it translates into English as 'firelog' — full of rich chocolate and cream," says Philippe. "Also a part of the Christmas dinner are wines and champagne, but not from the Napa Valley." His employer back home hosts a party for the children, giving each one a present and buying out the house at the Paris Circus for one night for the whole family to enjoy.

However, this Christmas will find him driving to LA and Disneyland where his son will discover a new treat — the wonderful, make-believe world of Disney.

\*\*\*

Jaap brought his family — wife Ria and 10-year-old daughter Renske — from the Netherlands in June, and will stay for a year also. He's a mechanical engineer, employed by the Energy Research Foundation operated by the government.

The Dutch children get their gifts on St. Nicholas Day Dec. 6, which celebrates the saint's birth 16 centuries ago. Dressed in the familiar red robe, with a papal-like mitre hat, he rides a magnificent white stallion. A few nights before the 5th, boys and girls fill their shoes (many years ago wooden shoes) with hay or a carrot for his horse and leave them near the fireplace. St. Nick's legendary helpers, known as Zwarte Pieten, may come down the chimney and take the offering, sometimes leaving a small toy as a reward in the shoe. On the night of Dec. 5 comes a knock at the door. And outside is a bag of presents left by St. Nicholas.

Dec. 25 is usually observed as a religious holiday, and the families gather for a fine meal. The main courses typically include turkey or chicken and rolled pork with spices, called roulade. Wine or beer or both top off the meal. Christmas trees are also a tradition as they are in many countries. Ornaments and electric lights, plus some foil wrapped candies, adorn the branches.

Jaap will be taking his family and some



friends visiting from the Netherlands to Southern California over Christmas. They'll tour Death Valley and other tourist spots as far south as San Deigo.

\*\*\*

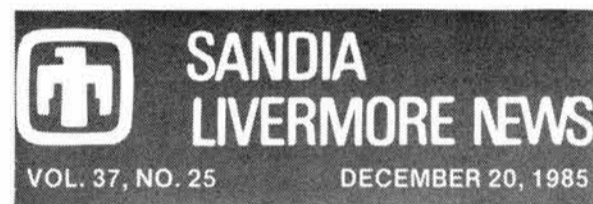
Bjorn, who heads the Division of Thermodynamics at the Norwegian Institute of Technology, arrived at Sandia in early July to do some studies in turbulent combustion. With him for the summer were his five family members — wife Mary, daughters Pia and Anya, and sons Oestein and Torgeir, ranging in age from 14 through 24.

"By definition, Christmas in Norway is the most traditional of all," Bjorn says, "because we're closer to the North Pole." He recalls the horse-drawn sleighs used in the wintertime, and adds that nearly everyone does cross-country skiing. The Norwegian Santa, known as Jule Nissen, hides in the barn, and on Christmas Eve he hitches up the reindeer to deliver toys throughout the countryside.

Norwegian families may feast on pork ribs, sausages, or a fish known as lutefisk. A treat in Bjorn's region are multiberries, made into a dessert. Norwegians often decorate their trees with flags of the country, ornaments, and lights that resemble candles. Bjorn's community is home to the most famous Protestant cathedral in Norway, the 900-year-old Nidaros Cathedral, and his family goes there for Christmas Eve services.

REMINISCING ABOUT Christmases back home are four foreign researchers at the Combustion Research Facility (left to right): Jaap Hoornstra of the Netherlands, Bjorn Magnussen of Norway, Kristopher Kringle (behind railing) of the North Pole, and Philippe Magre of France.

And Bjorn thinks he's getting the nicest Christmas present of all — he leaves for home in time to be with his family for the holidays.



### Congratulations

Howard Royer (8254) and Kelly Smith, married in Dublin, Oct. 12.

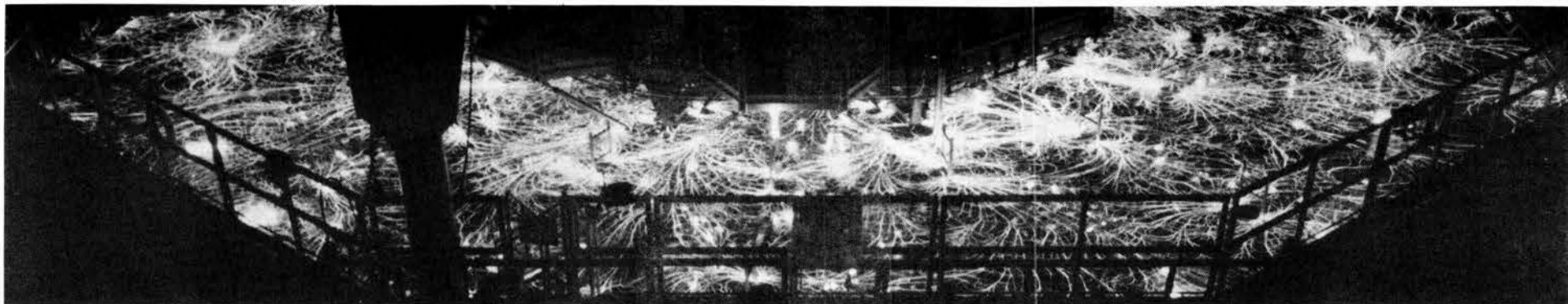
## Fun & Games

Sandia Livermore's Mixed-Doubles Fun Tennis Tournament was held at the Amador Valley Athletic Club on Nov. 16 with 32 participants. First place doubles winners were Shelia Daigle (8234) and Neil Lapetina (8152). Second place went to Gabe Gabrielson (8233) and Sherron Landry, a guest.

Players changed partners after each match; the winners were determined by drawing the "winning court" out of a hat after the last match. Organizers for the event were Sherry Bowen and Vern Byfield (both 8274). The next tourney is planned for Spring 1986.



HOLIDAY LIGHTING display was designed and constructed by Chuck Bryan's Electrical Section 8257-2 of the Maintenance Division. The "trees" were Sandia's contribution to the Chamber of Commerce's "Light Up Livermore" campaign for the 1985 holiday season. The three poles (the tallest is 25 feet) support strings of some 3600 tiny white lights. The stars atop each pole were constructed in the sheet metal shop and contain lights on both sides.



ARCS & SPARKS formed electrical "trees" above and below the surface of the insulating water just after the first PBFA-II shot last week. The electrical stress on components is so high that whiskers, then streamers, finally lacework like this form between sources of high potential and ground potential. Because they form after the firing of the high-energy pulse, they contain comparatively little power — that is, they're more a natural phenomenon than a fault mode.

### Continued from Page Three

chamber containing the Applied-B diode (see LAB NEWS, March 2, 1984) where the fuel pellet will be placed. Electric current, trickle-charged into giant capacitors and released simultaneously by all 36 modules, streaks into the diode and produces a beam of lithium ions.

If that beam can be focused sufficiently (and recent experiments indicate that it

can; LAB NEWS, April 12, 1985), the beam will impact on the surface of a pea-sized fuel pellet and implode it — crush it in on itself. The implosion will compress the fuel to about 1000 times solid density and heat it to about 100 million degrees C, some six times the temperature at the center of the sun.

If no insurmountable obstacles intrude, such implosions could fuse the deuterium

and tritium fuels and release far more energy than it took to create the reaction. Someday, the 21st century, say, fusion energy could become the nation's electrical power source.

In the meantime, fusion researchers see PBFA-II not simply as the world's most powerful particle accelerator but as one more tool that should allow new insights into the nature of fusion physics.

## On the Scene at PBFA-II

It is 7:23 p.m. on Dec. 11. Bldg. 984, home of PBFA-II, is bustling with a hundred or so Sandians and K-Tek contractors performing last-minute checks and operations designed to bring the giant machine to its first firing.

The CCTV monitor in the dimmed visitors' room shows the key people in the control room across the hall. Steve Goldstein, supervisor of Pulsed Power Operations Division 1254, keeps the visitors updated on progress toward the shot (with the ubiquitous view-graphs) and translates the acronyms those in the control room are using to check off the final steps in the countdown.

"This is not just a test shot," says Tom Martin (1250). "If it works, we'll get some physics data."

If it works. "We've practiced this many times before, but if they [the control room people] feel anything like I do, they're scared to death," notes Steve.

It's been a long day. Some of the shot team members had arrived at 2 a.m., the rest between 6 and 7. The shot had been scheduled for 2 p.m., but problems with the laser triggering system had caused postponement after postponement.

"I'd planned to send everyone home and try again on Thursday if we couldn't get the shot off by 5 or 6," says Mike Wilson (1254), the test integrator. "But we held a meeting, and the whole crew said they wanted to shoot it tonight."

At 7:23, one last test of the balky laser system. "If that was a good shot, we'll go for it," says Dennis Nations (1254), control room coordinator. Tension builds for both researchers and visitors.

"We are go!" announces Mike when the laser test results are analyzed nine minutes later. His announcement is punctuated by the theme music from "Star Trek" on the PA system with voice-over reminding the listeners that Sandia "boldly goes where no man has ever gone before."

That inspirational message is quickly followed by a tongue-in-cheek disclaimer

from "Mission: Impossible": "As always, if you should fail, Sandia and the DOE will disavow any knowledge of your mission."

7:40. Roy Hamil (1244) arrives in the visitors' room and causes a brief round of applause. He was in charge of the crew that repaired the laser system.

The waiting seems interminable as each of the interrelated systems that make up PBFA-II is charged, dumped, checked, and charged again. The visitors consume more eggnog and Christmas cookies, leftovers from the VIP gathering six hours earlier. "Eight minutes to go," comes the announcement at 7:59.

At 8:06 the visitors breathe a sigh of collective relief — the shot is going to go. They know that because Pace VanDevender, 1200 director, has placed a conference call to former 1200 director Gerry Yonas and Gen. Kenneth Withers, Deputy Assistant Secretary for Military Applications. They will listen to the final minutes of the countdown from Washington.

It's 8:07. The giant Marx generators are finally being charged. The visitors eye their coats and jackets, lying scattered over chairs throughout the room. If the shot kills the building's electrical system, a definite possibility, the wraps will be needed for the cold trip to a nearby building.

8:08. Voices from the control room are shaking a bit now. The electricity in both rooms is nearly enough for a successful shot without the hardware in the high bay.

Then it's 8:09, and Dennis is saying "Fire!"

A few seconds later, the CCTV camera above PBFA-II sends a flash of light to the monitors, the building rocks, and a flat "Whap!" hits the ears of the listeners.

Everyone has been told to keep quiet, so the team members whose job it is to determine whether any safety alarms are necessary could do their work. But it's tough not to shout. And some do.

Once assured that the shot has gone off (an unnecessary bit of information), that it was apparently successful, and that no alarms were necessary, both shot team and visitors release the exhilaration that had been building for hours, if not for days. Except for the lack of real champagne, the scene resembles the Royals' dugout just after the last game of the Series.

Gerry Yonas stays on the line long enough after the shot to tell LAB NEWS that he's speechless. After being told that that fact was every bit as remarkable as the PBFA-II shot itself, Gerry regains control: "I'm incredibly thrilled. And proud of everybody."

"I could feel the machine's vibrations up my spine all the way across the country. That's got to be the best pulsed power team in the world!"

Marshall Sluyter, pulsed power program manager for DOE headquarters, had flown in just to be with the team for the first shot. He says, "I'm too happy to think of anything to say. But I felt that if it could be done, this team could do it. And the jubilation in here and in the control room at the moment has to equal that after the first Apollo shots."

Vice-President of Research 1000 Bill Brinkman had spent most of the afternoon shuttling between his desk in Area I and the visitors' room in Area IV. "The shot is a real thrill for me," he says. "It was beautifully done. I'm proud of the whole team."

And Pace is even more exuberant: "It's the most exciting moment of my life — although my wife may wish to discuss that!"

Pace was still euphoric when interviewed a couple of days later: "The event and the impressive and professional way in which the team carried it out demonstrate we are on the road with a winner of an accelerator. I'm very thankful for the engineers, experimenters, theorists, and sponsors who together have made it possible." •BH

JOHN ZEIGLER (1812)  
and DENNIS MITCHELL  
(2513)



## Supervisory Appointments

JOHN ZEIGLER to supervisor of Physical Chemistry and Mechanical Properties of Polymers Division 1812, effective Dec. 1.

John has been a member of the technical staff in the Chemistry of Organic Materials Division since he joined Sandia in June 1981. He has been involved in research on the synthesis and chemistry of polysilanes and conductive polymers.

Before he came to Sandia, John worked almost two years at American Cyanamid Co. in Stamford, Conn.

He received his BA in chemistry from Wabash College (Indiana) and his PhD in organic chemistry from the University of Illinois.

John likes to try his hand at gourmet cooking and is a wine collector. He enjoys classical music, hiking, and "fun" traveling. He lives in the NE Heights.

\*\*\*

DENNIS MITCHELL to supervisor of Detonating Components Division 2513, effective Dec. 1.

Dennis joined the Labs in June 1969 as an MTS in the Simulation Testing Division, where he worked on impulse simulation techniques development and testing activities. From 1973 to 1975 he was involved with guidance and control, fuzing, and detonating components projects. For the last 10 years, he's been in the division he now supervises. He's had a variety of assignments there: steam explosion phenomenology, explosives initiation research, component design, and advanced development activities on components.

He received both his BS and MS in ME from UNM.

Dennis is involved with youth activities like Little League and is the organist at his church. He plays golf and enjoys woodworking in his spare time. He and his wife Mindy have a daughter and a son. They live in the NE Heights.

\*\*\*

TOM CUTCHEN to manager of Neutron Devices and Technology Department 2560, effective Nov. 16.

Tom worked on ferroelectric firing sets when he joined the Labs as an MTS in September 1961. He took an educational leave of absence in 1965 and, upon his return to Sandia in 1970, joined a group involved with electro-optic ceramics research. He was project leader for the thermal/flash protective device (TFPD) development program, from which emerged flashblindness goggles now used by the Air Force.



TOM CUTCHEN (2560)

Tom also worked on an integrated TFPD device and chemical protection system for USAF pilots. He was promoted to supervisor of the Applied Physics Division (in the department he now manages) in 1980. Two years later he moved to Exploratory Batteries Division 2523, the job he had before his recent promotion.

Tom has a BS in engineering physics and an MS in physics, both from Auburn University. He received his PhD in physics from the University of Virginia in 1970.

He is a member of the American Physical Society, the American Chemical Society, and IEEE. He also serves on IEEE's Ferroelectrics Committee.

Camping and gardening are a couple of his outside interests, and he's also involved in youth work at his church. Tom and his wife Glenda live in the NE Heights. They have five children — three at home.

## Deaths

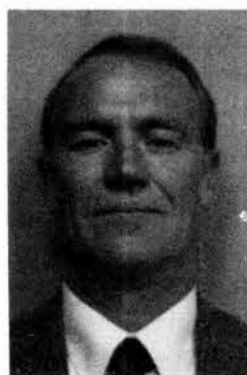


Harold Psillas of Project Engineering Division 5233 died suddenly Nov. 30. He was 57.

He had worked at the Labs since May 1952.

Survivors include his wife, two sons, and a daughter.

\*\*\*



Tony Johnson of Future Options Group 1601 died after a short illness Dec. 5. He was 50.

He joined Sandia in October 1984.

Survivors include his wife, a son, and a daughter.

## Fun & Games

*Cross-Country Skiing* — Sandians who use Sam Beard's book, "Ski Touring in Northern New Mexico," in their ski excursions will want a copy of his recently published addendum to the book. Sam (1633) says the addendum describes 20 new touring trails and includes maps of seven ski touring areas. Four of the new trails are in the Sandias; the others are in the Jemez mountains and in the Carson and Rio Grande National Forests. All have been developed or at least defined since 1979, when the book was published. Sam is charging a dollar for the addendum to cover printing costs.

\*\*\*

*Bird Counting* — Every year from mid-December to early January the National Audubon Society sponsors a Christmas Bird Count. Both novice and experienced "birders" are invited to list the birds they see over a one-day period; counters travel together in designated areas to record numbers and species. You can get in on the fun this year (you don't have to be a Society member to participate) at the following areas:

• *Bosque del Apache* — Saturday, Dec. 21, 7:30 a.m. Meet at Refuge Headquarters near Socorro. Contact: Chuck Hundermark, 897-2818.

• *Sandia Mountains* — Saturday, Dec. 28, 7:30 a.m. Meet at Pete's Home of the Halfbreed Mexican Restaurant (Highway 14, one-half mile north of the Sandia Crest turnoff). Contact: Kay Anderson, 821-1606.

• *Corrales* — Saturday, Jan. 4, 7:30 a.m. Meet at Corrales Shopping Center parking lot. Hart Schwartz, 266-1810.

Data from all the bird counts are published later in the year in a special edition of *American Birds*. Each bird count participant pays a \$3 fee, which goes to defray publication costs.

\*\*\*

*Racquetball* — The Fourth Annual Sandia Labs Racquetball Tournament is coming up Jan. 18 at the Academy Court Club, 5555 McLeod NE (just east of San Mateo). Players of all skill levels are welcome. Beginners and players who want to brush up on the rules can participate in a free clinic starting at 3 p.m., followed by the tournament, which begins at 4 p.m. It's open to all SERP and SERP-eligible people (Sandians, DOEans, and dependents). The tournament entry fee of \$5 covers refreshments — sandwiches, munchies, soft drinks, beer and wine — and the use of all club facilities. Honchos Steve Breeze (7116) and Stan Ford (SERP) tell us the emphasis will be on fun. Entry form and fee should be sent to Stan by Jan. 10 at 4 p.m. Call Steve, 6-5511, or Stan, 4-8486, for more info.

\*\*\*

*More X-C Lessons* — By popular demand, SERP is sponsoring another round of cross-country skiing lessons for beginners and intermediates. The two beginners' groups (one starting Jan. 7, the other Jan. 21) feature both an indoor and outdoor session. Likewise for the intermediates, who will meet indoors on Jan. 14 and hit the trail on Jan. 19. Class cost is \$15 if you have equipment, \$21 if you don't. These classes fill up fast, so don't delay signing up with the SERP office, 4-8486.

## Sandians Remember Others During the Holidays

As in holiday seasons past, Sandia employees are giving their time, talent, and money as Christmas charity projects at the Labs shift into high gear.

\*\*\*

For the 28th straight year, Organization 7200's "Shoes for Kids" drive will ensure that at least 100 children in the Albuquerque Public Schools area will receive much-needed new shoes and socks for Christmas. Don Rohr (7212), drive chairman, reports that for many years the Kinney Shoe Company has given the project a generous discount on the shoes, and has done the actual fitting for each child. "Thanks to the generosity of directorate members and the continuing cooperation of Bernie Sena of the Kinney Shoe Store at Coronado Center, we have been able to provide nearly 3000 pairs of shoes and socks to needy children in the APS district over the years," says Don. Anyone wishing to contribute (including former members of the 7200 organization) can send a check payable to "Shoes for Kids" to Don.

\*\*\*

Another long-running holiday project is the 2800 Directorate Christmas Food Drive, now in its 27th year. Dave Trujillo (2857), chairman of the committee this year, reports that money collected for this year's drive will be used to buy canned hams and Bag & Save gift certificates, good for food and clothing, for at least 30 needy families. "The Salvation Army provides us the names of those who most need assistance, and we help as many as we can," he says. "Last year we raised about \$1400, and we hope to raise even more this year. Though most of our funds come from people in 2800, we receive contributions from employees in other organizations as well." If you'd like to help the project this year, you can send a

check ("2800 Christmas Food Drive") to Dave.

\*\*\*

For 19 years the South 14 Village Project has assisted families living in the small towns along South Highway 14 in the Manzano mountains. "This year we'll be able to provide grocery money to 11 families in Escabosa, Tajique, Chilili, Torreon, and Manzano," says John Shunny (ret.), co-chairman of the project. "We also plan to help certain folks in other ways. For instance, we're going to buy Tomas Montoya, one of our old friends out there, a new set of choppers for Christmas." The project concentrates on older people whose only resource may be Social Security checks or younger families with two or three small children who just can't make ends meet, according to Julian Sanchez (also ret.), the other project honcho. Funds to support the project are raised through sales of Sandia T-shirts and caps and books from the UNM Press, all sold from the LAB NEWS office. "Checks are also gratefully accepted," says John. "Just make them out to 'South 14 Village Project' and ship them off to the LAB NEWS, Division 3162."

\*\*\*

For the second year in a row, Accounting Department 150 has collected donations to buy gifts for students at Peanut Butter & Jelly Pre-School. The school provides special education for low-income, mentally handicapped children in the Albuquerque area. Nita Denton (152), project coordinator, reports that almost \$100 was raised this year — enough to buy presents for 12 PB&J students. She obtained a list of the kids' "most-wanted" presents from a local radio station that spearheads a drive each year to see that children at the school don't get left out at Christmas.

## Welcome

### Albuquerque

Melanie Briseno (2831)  
Ralph Carr (7212)  
Trent Henderson (6222)  
Alice Kilgo (2631)  
Elmer Opichka (2124)  
Grace Bujewski (2149)  
Susie Cox (3423)  
Peter Egan (3330)  
Sue Erickson (3330)  
Nancy Knight (2831)  
John Nielson (7265)  
Patricia Padilla (2631)  
Robert Surran (3432)  
Robert Wege (3732)

### Arizona

Susan Joseph (1831)  
Eric Brock (1234)

### California

Juan Atencio (5122)

### Iowa

Shawn Kerr (1654)

### Michigan

Douglas Stamps (6427)

### Mississippi

Francesco Lupinetti (5268)

### New Mexico

M. Krebs-Jespersion (2148)  
Raymond Heath (331)

### Texas

Fredrick Hill (5268)  
James Strickland (1632)

## Congratulations

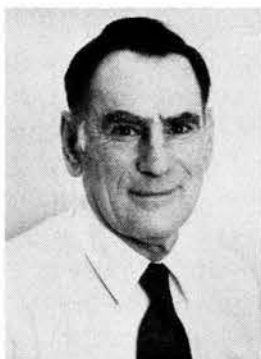
Barbara and Barry (121) Anderson, a son, Brandon James, Nov. 1.

Sandy and Jack (1534) Wise, a daughter, Ashley Attya, Nov. 3.

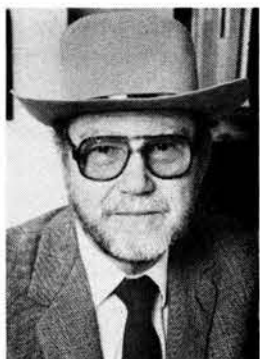
Elisia and Joe (2857) Sanchez, a daughter, Rosalla, Dec. 4.

Cathy Stonebraker (2858) and Dan Vortolomei (2853), married in Albuquerque, Dec. 14.

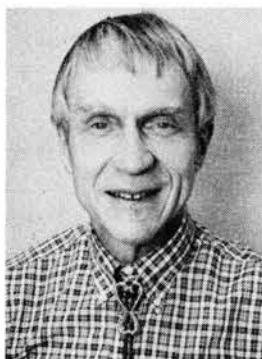
## Retiring



Victor Roh (5341)  
31 yrs.



Homer McIlroy (3742)  
31 yrs.



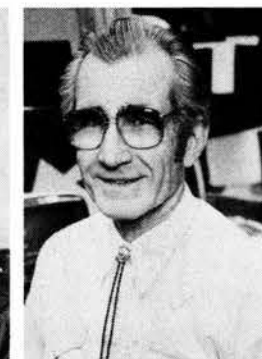
Joe Taylor (7261)  
28 yrs.



Mary Campbell (3523)  
28 yrs.



Vance Prutsman (3434)  
29 yrs.



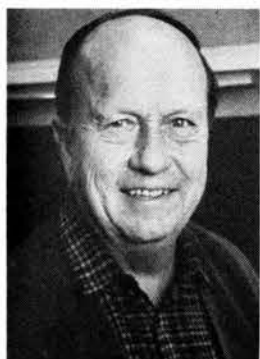
Alan Bolles (5146)  
36 yrs.



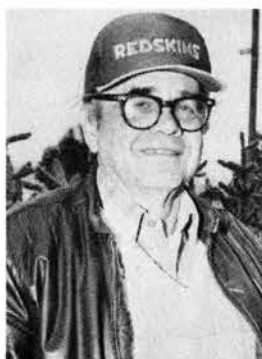
Robert Shuman (7541)  
29 yrs.



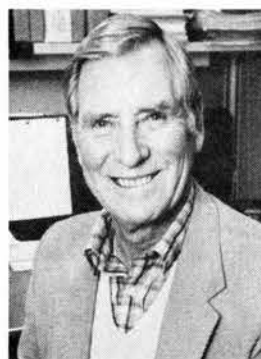
Al Rakoczy (5114)  
28 yrs.



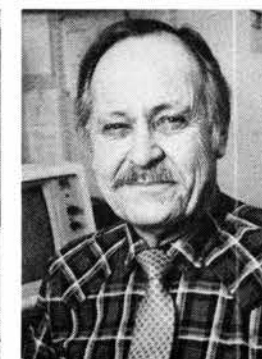
Floyd Ganyard (2142)  
19 yrs.



Pete Morris (3313)  
27 yrs.



Harry Olson (2121)  
32 yrs.



Vic Lewis (5230)  
33 yrs.



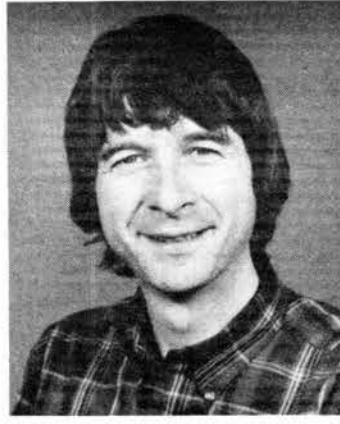
Craig Summers (3743)  
37 yrs.



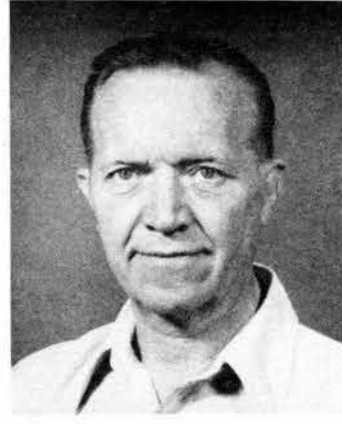
Carl Csinnjinni (7126)  
37 yrs.



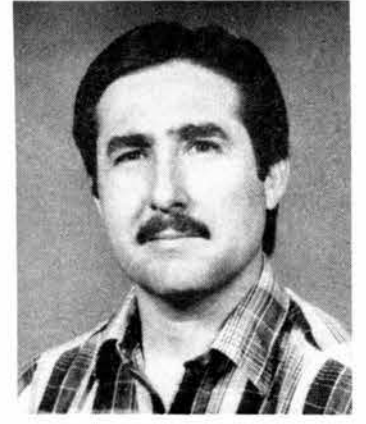
**MILEPOSTS**  
**LAB NEWS**  
DECEMBER 1985



John Panitz (1134) 15



Bob Ferguson (3153) 30



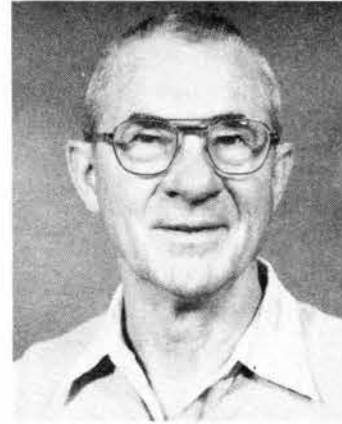
Richard Sena (7815) 15



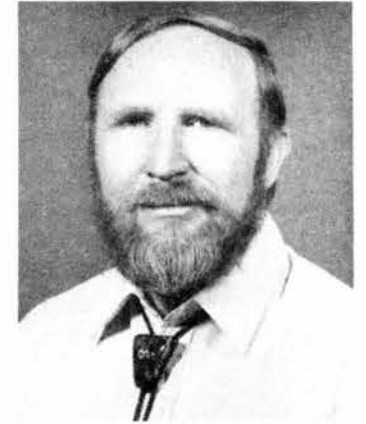
Jim Hayes (3155) 35



Pamela Hund (2147) 10



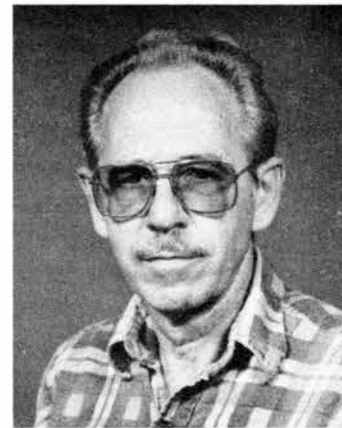
Everett Dow (5233) 35



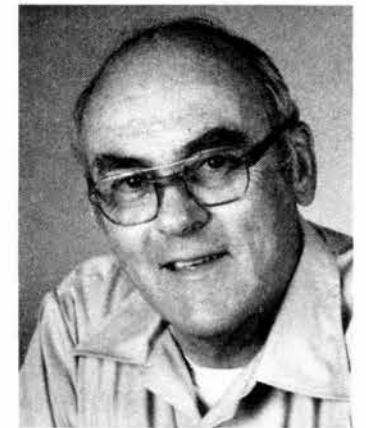
Larry O'Connor (2342) 20



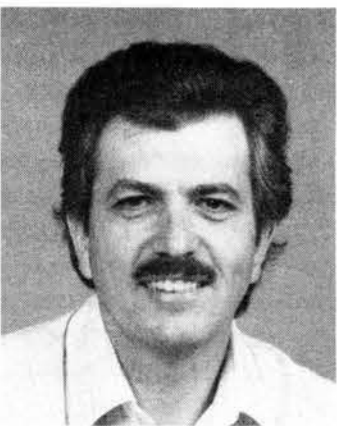
Joseph Losinski (7222) 25



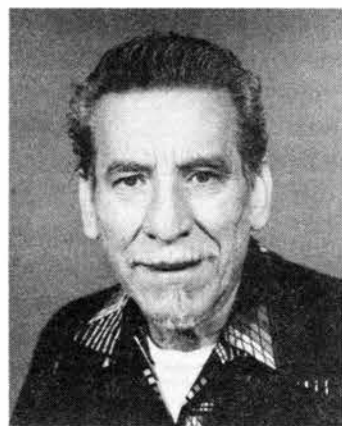
Leon Gordon (7815) 10



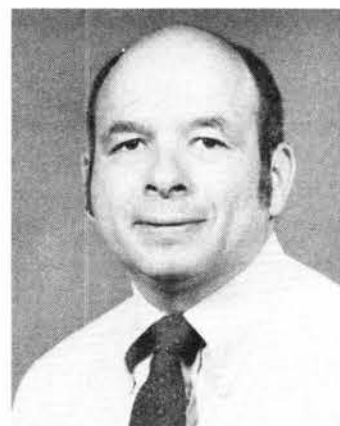
Joseph Bradshaw (7123) 30



Rich Campiotti (8186) 20



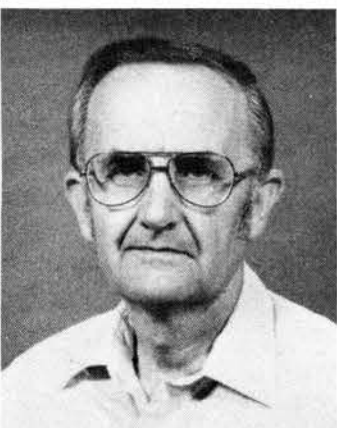
Jose Gallegos (7482) 30



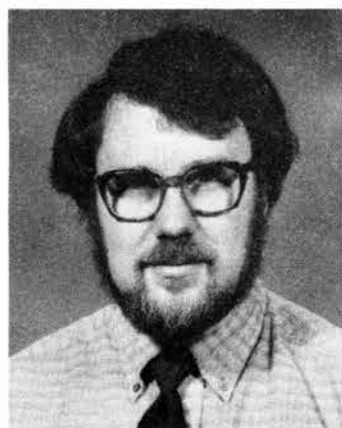
Jim Sweet (1824) 15



Margie Box (2626) 15



Albin Jacobson (2522) 25



Bill Wenrich (2826) 10



Carl Scheiber (5112) 30

## Events Calendar

Dec. 20-22 — "Peter Pan" (non-musical version); Fri. 8 p.m., Sat. 2 p.m. and 6 p.m.; Sun. 2 p.m.; Albuquerque Little Theatre, 242-4750.

Dec. 21 — Christmas party (Spanish dancers, recording artist David Salazar, breakdancers, choir, Santa Claus), 2-4:30 p.m., South Broadway Cultural Center, 1025 Broadway SE, 848-1320.

Dec. 22 — Movietime at the KiMo — Boy Meets Girl Series: "Modern Times," American (1936), silent Charlie Chaplin classic with musical accompaniment, 7 p.m., KiMo.

Dec. 24-29 — Annual Christmas celebrations: various dancers, dusk pinetorch processions, Spanish dance/drama "Los Matachines" at most pueblos; contact pueblos.

Dec. 27-Jan. 5 — "Annie," Albuquerque Civic Light Opera Association, 8:15 p.m., (2:15 p.m. matinees on Dec. 28-29, Jan. 1 and 5), Popejoy Hall, 277-3121.

Dec. 29 — Movietime at the KiMo — Boy Meets Girl Series: "Pygmalion," British (1938), Wendy Hiller and Leslie Howard, 7 p.m., KiMo.

Dec. 31 — Timesquare on Civic Plaza, New Year's Eve celebration; Linda Cotton & Street Life, Frank Chewiwie, Albuquerque Jazz Orchestra; food, luminarias, fireworks; free admission; 8 p.m.-1 a.m., Civic Plaza, 766-7660.

Jan. 5 — Movietime at the KiMo — Boy Meets Girl Series: "Gervaise," French (1957), English subtitles, Academy Award winner of Best Foreign Film, 7 p.m., KiMo.

Jan. 8 — Concert, Chamber Orchestra of Albuquerque; David Oberg, conductor; Donna Nossett, clarinet soloist; Sibelius, Honegger, Mozart; 8:15 p.m., Albuquerque Little Theatre, 247-0262.

Jan. 9 — Showtime at the KiMo — Stringtime Series: Bill Baker concert, 8 p.m., KiMo.

Jan. 12 — Movietime at the KiMo — Boy Meets Girl Series: "Lady with a Dog," Russian (1959), English subtitles, 7 p.m., KiMo.

Jan. 15-26 — "Master Harold"...and the boys," New Mexico Repertory Theatre, 8 p.m. (Sat. and Sun. matinees at 2 p.m.) KiMo, 243-4500.

Jan. 17-18 — New Mexico Symphony Orchestra concert, all-Russian program (Glinka, Stravinsky, Tchaikovsky); Roger Melone, conductor; Lydia Artymiw, piano; Popejoy Hall, 842-8565.

## Coronado Club Activities

### Ready or Not, Here Comes 1986!

THE NOISE MAKERS AND CHAMPAGNE are ready to go. Are you? You still can get in on the big New Year's Eve party at the C-Club, but time's awastin' — the reservation deadline is *today!* Call the Club office right now, 265-6791, to sign up. Upstairs and down, great entertainment is on tap; the group Together plays in the ballroom, while the Bob Banks Trio holds forth in the Eldorado room. Add all this super music to the other goodies — noise makers, favors, hors d'oeuvres, midnight breakfast with a free bottle of champagne — and you have the makings of a memorable evening. The cost for all this merriment is just \$25 per couple or \$13 for a single. We kid you not — there's no better bargain in town.

TAKE A BREAK tonight from the holiday rat race, and relax over a two-for-one dinner special at the Club. It's your only chance this month to get in on that great deal. Prime rib or shrimp peel are featured — two dinners for \$12.95. And if your feet are still in working order after all the shopping, you can get out there on the floor and dance to the special country-western sound of the Isleta Poor Boys.

THUNDERBIRDS, from 1-5 p.m. this Sunday, Dec. 22, you can welcome the holidays by getting together with other T-Birds in the Club ballroom. Snacks, open cash bar, and a Christmas carol sing-along. The price is right — it's free!

REMEMBER, that hard-working bunch of folks at the C-Club are on vacation too from Dec. 25 through Jan. 1 (except for New Year's Eve, naturally). You can get out there and help them shut the place down at the "Close-Down" party in the lounge from 12 noon-6 p.m. on Dec. 24.

CORONADO SKI CLUB members are getting around this month. They've already hit the slopes at Wolf Creek and Purgatory, and have one more trip planned — to Utah Dec. 27-Jan. 2. It's a full schedule in January too: Monarch Jan. 3-5, Purgatory Jan. 11-14, Taos Jan. 18, and Sun Valley Jan. 18-26. For info, call Sharon Mackel, 6-3190, or Steve Ross, 4-7017.

START THE NEW YEAR RIGHT by dropping in at the Club for its famous Baron of Beef buffet on Friday night, Jan. 3. Enjoy the buffet for a low, low \$6.95, and stomp around afterward to the country-western strains of the Isleta Poor Boys. There'll be c-w dance lessons from 7:30-8:30 that night for those of you who want to brush up.

FAMILY VARIETY NIGHT on Jan. 4 will feature "Pinocchio," the puppet whose nose grows a little longer every time he tells a fib. The Disney classic will be shown on the big screen after a low cost buffet featuring pizza-by-the-slice and hot dogs. It all starts at 5 p.m.

THOSE THUNDERBIRD CARD PLAYERS will be back at it in 1986. Two



WIDE-EYED KIDS were all over the place at the C-Club's Kids' Christmas party a couple of weeks ago. Here, they're listening to the Rio Grande High School chorus entertain them with Christmas songs. A record number of kids turned out for the fun, which included puppet show, singing, cartoons, popcorn (obviously), and Mr. K. Kringle. Phyllis Padilla (3521) and Ernie Montoya (7475), who organized the whole thing, report that *everybody* benefited on this one. The admission proceeds (a can of food or \$1) were donated to a local American Legion Auxiliary project that distributes food baskets to the needy. "Not only did the kids have a great time at the party, but we also collected six big boxes of food [259 cans] and almost \$100 in cash to turn over to the Auxiliary," says Ernie. On the 31st, it's the adults' turn — come out for the New Year's Eve party.

sessions are planned in January — on the 6th and 20th. (Are these folks getting ready for Vegas, or what?) Come on out at 10:30 a.m. both days and meet those other sharks in the Eldorado room.

SPEAKING OF THUNDERBIRDS, the group has two *biggies* planned for January. A dinner-dance on Jan. 11 starts at 5 p.m. with cocktails, followed by dinner from 6-8 featuring a choice of prime rib or halibut. Afterwards, you can swing to the big-band sound of the Rhythm-Aires.

Then on Sunday, Jan. 19, the T-Birds are getting together for a brunch and dance. Brunch will be served from 11 a.m.-2 p.m., and the Bob Banks Trio will provide music for dancing from 1-3. What a great way to spend Sunday afternoon! Make your reservations for both these events by calling the Club office.

THE TWO-FOR-ONE DINNER special on Jan. 10 features prime rib or deep fried shrimp — two dinners for \$14.95. You'll note a slight price increase for this Club favorite (inflation, like time, marches on). It's still a good deal for the bargain hunters, though. Spinning Wheel will be on the bandstand that night for your dancing pleasure.

THE FIRST SINGLES MINGLE in 1986 will be Thursday, Jan. 16, from 5-10 p.m. This is where it's at, folks. Special drink prices in effect, and Soundwave provides the swinging music.

**Tennis** — Now is the time to renew (or begin) your Coronado Tennis Club membership. The CTC facility is one of Albuquerque's finest. Fees for 1986 are as follows:

- Individual \$35
- Couple 50
- Family of three 60
- Each additional family member 5
- Daily guest fee 1

CTC fees are for CY86 and will not be prorated, so get in on the action from the beginning of the year. CTC club cards are now available at the recreation office. Give Stan Ford a call at 4-8486 if you need a membership form.

**C-W Dance Lessons** — A series of lessons for C-W dance beginners will start at the C-Club in January. For \$30 per couple, you'll learn the two-step, swing, polka and waltz. Classes meet on Monday and Wednesday nights from Jan. 6 through Jan. 22. Sign up through the SERP office, 4-8486.

## Fun & Games

**Clowning** — OK, you closet clowns, here's your chance! SERP will sponsor a clowning class beginning Jan. 8 and meeting every Wednesday night from 7-9 p.m. through Feb. 26. You'll learn all about

juggling, light magic, costuming, make-up techniques, and performing skits. Cost is \$10 plus supplies. Call 4-8486 for more info and sign-ups.

\*\*\*

**Bowling** — SANDOE's bowler-of-the-month awards for November went to Harold Howell (3434) and Karen Baack, high men's and women's scratch series; and Reggie Tibbetts (7815) and Jean Gore (ret.), high men's and women's handicap series.

SANDOE is sponsoring a No-Tap/Scotch Doubles tournament Jan. 18-19 at Holiday Bowl. For more info, call Dora Gunckel, 4-4052.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

**Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.**

### Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2 by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per issue per category.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignments.
10. No commercial ads.
11. For active and retired Sandians and DOE employees only.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

### MISCELLANEOUS

MINICAR (GO-CART), parts: chassis, jeep-style body, 3.5-hp B&S engine, \$100 for the lot. Kobs, 281-1102.

MOTORCROSS HELMET, Bell MotoStar-3, red, 7-3/8, Petty goggles, Hondaline gloves, \$60; weights, soft/hard, bench, curl bar, arm blaster/squat stand. Riney, 299-1457.

TWO-WHEELED HORSE CART and nylon harness, \$375; three pieces metal roofing, \$35, will trade for gravel/firewood. Turpin, 281-5933.

FOUR STUDDED SNOW TIRES mounted on Chevrolet Citation wheels, \$50 each. Kinoshita, 299-6491.

TV, 19", GE color, \$150 OBO; trampolines, Jog-and-Tramp, \$30. Young, 884-7836.

WHIRLPOOL electric apartment-size dryer, \$100; 1982 New Standard Encyclopedias, \$150 OBO. Owen, 299-3487.

PIANO, Yamaha, console w/bench, walnut finish, one year old, paid \$2200, \$1500 OBO. Ennis, 298-3631.

ROSSIGNOL CROSS-COUNTRY SKIS, waxless, w/75mm bindings, 205cm, \$50. Passman, 821-4999.

14K JEWELRY: rings w/semi- and precious stones, earrings, chains, bracelets, pins, etc. Gann, 884-5350 (ask for Sharry), or 299-0933 evenings and weekends.

CLASSIC GUITAR, w/case, used six months, \$200. Chavez, 265-3933.

REPLICO ANTIQUE COUCH, best offer. Martinez, 292-3041.

BARBECUE GRILL, Buddy L Grillmaster, 24" dia., 3-1/2' high, 4-position vertical grill adjustment, removable legs for portability, \$6. Schkade, 292-5126.

SKI RACK, BarreCrafters Model SR41, locks skis onto rack and rack onto trunk, holds four pairs skis, \$35. Barr, 821-5870.

SONY STEREO/PHONO turntable

w/AM/FM radio and speakers, \$35; Zenith B&W 19" TV, \$35. Caton, 294-4490.

TWO 64-GAL. heavy galvanized water tanks, \$20 each. Stromberg, 255-6131.

BLACK VINYL SWIVEL ROCKER/ottoman, \$45; Schwinn Varsity 10-spd. bicycle, \$50; aluminum extension ladder, 16', \$20; Prince Pro tennis racket, \$40. Smith, 299-6873.

AMIGO 3-wheel, battery-powered wheelchair, used only one week, \$2200 new, \$1500 OBO. Olguin, 265-1991.

TIME/LIFE Library of Photography, 14 volumes plus two Photography Yearbook annuals, \$40. Allen, 296-6453.

25" CONSOLE TV, RCA XL-100, walnut, \$100; woman's 24" 10-spd., used 3 times, \$125; Toshiba microwave, 1984, \$275. Brandon, 836-5415 or 881-6698.

EARLY AMERICAN SOFA (double), gold/rust color, \$225; overstuffed brown plaid chair, \$75; Early American swivel rocker, \$75. Gabaldon, 266-0028.

HAMMOND ORGAN/chair, \$300; DR table w/six chairs, \$225; Stihl chain saw w/case/extra chain, \$325; silverware case, \$5. Lohkamp, 298-6494.

FREE, 1976 Landcruiser stock rim and rear hubcap. Kovacic, 281-1754.

COMPLETE RADIO SHACK MOD 1 computer system, 2 disks, printer, table, etc., \$500; baby car seat, \$20. Barnette, 292-5186.

TWO CHAIN LINK GATES; cast iron bath lavatory, \$6; 36" gas stove, \$25. Padilla, 877-2116.

TOYS: 3/4" regulation ping pong table, \$65; 30"x60" pool table, \$25; air hockey, \$25; guitar, \$35; electric organ, \$35. Crawford, 881-3812.

DUTCH RABBIT and hamster, all feeding gear, wheel, litter box, custom-built 15 cu. ft. cage w/legs, \$50. Ennis, 298-3631.

SKI RACK for MAZDA RX7, holds two pairs of skis, \$40. Chao, 821-1949.

CAMPER SHELL FOR LWB pickup, \$45. Hall, 298-8617.

SIGMA 35-105mm zoom lens, Canon mount, under warranty, \$50. Vogel, 256-0975.

CHROME DINETTE, 30"x40" Formica table w/10" leaf and four heavy padded vinyl chairs, \$50. Keepports, 881-8066.

KELVINATOR ELECTRIC STOVE, 4-burner, \$100; 1200-egg incubator for all size eggs, \$350, trade for chickens, ducks or feed. Lackey, 898-6638.

CROSS-COUNTRY SKIS, waxless, Trucker, 215cm w/bindings, \$30; Look Nevada downhill bindings, \$25, H78-15 tire, new, 6-hole Chev. rim, \$40. Shunny, 265-1620.

WASHER/DRYER (electric), Kenmore, white, full-size, one year old, \$375/pair. Calek, 255-9765.

MATTRESS, queen, pearl-gray, 1 yr. old, super-polyfoam, soft, Union Carbide, \$85. Dalphin, 265-4029.

STORM DOORS, 36" insulated crossbuck style w/screen insert, 32" aluminum combination, all mounting hardware included, \$10 each. Gentry, 298-3574.

WESTINGHOUSE, 21 cu. ft., freezer, \$135; Whirlpool washer and dryer, \$125 for both. Anderson, 298-0477.

NIKON MD-12 motordrive, brand new, \$165. Harris, 892-6281.

MODEL 90 automatic zigzag sewing machine, all attachments, w/hand-made table, \$100. MacInnis, 898-1628.

FURNITURE CASTERS, 24 each, double wheel, for chairs or whatever, \$1.75 each or \$40 for the lot. Anthes, 884-3644.

RCA XL-100, 25" console, color TV, 2 yrs. old, best offer. Martinez, 292-3041.

BPI General Accounting software, \$125; Rags to Riches General Accounting software, \$50; tutorials included, IBM-PC compatible. Brewster, 898-0144.

RUGS, some broadloom, gray, green, rectangular, round, scatter rugs, various sizes. Joseph, 888-0826.

LAB NEWS SCHEDULE: The next issue will be distributed on Jan. 17. Deadline for ads and for news items is noon, Jan. 10.

KAYPRO II, 64K memory, 2 disk drives, lots of software, \$800. Paul, 296-6500.

DISHWASHER, under-counter on casters; two casement window frames; two cast iron sinks w/faucets. Fleming, 293-4912 or 881-2223.

LEICA M4 CAMERA, 50mm lens, case, \$600; Leica screw-mount cameras and accessories. Mattox, 292-7763.

COLOR MONITOR for computer, 13" Amdek w/swivel stand, \$90; brass fireplace screen/tools, \$20. Laskar, 299-1024.

TABLE, smoked glass, round, w/4 chairs, \$175. Sheldon, 293-0467.

TELEMARK CROSS-COUNTRY SKIS, waxable, 210cm, Kazama Mountain Highs, Villom bindings, used five times, want \$110, paid \$240. Blake, 881-1663.

COMPUTER, Apple Macintosh, 128K w/extra disk drive, manual, \$1000 OBO. MorningGun, 884-2197.

WHITE CAMPER SHELL for minipickup, approx. 61"x89", \$200 OBO; tire chains (larger 14" size), \$15; Sotz wood burner, \$50. Mooney, 281-2612.

MOTORCYCLE PARTS for Honda CB750K, 1969-1976: touring seat, starter motor, alternator, lights, signals, fenders, more, low prices. Barnard, 831-4114 evenings.

GARAGE DOOR OPENER, Sears, \$60; wood folding door, 40", \$25; fireplace tubular heat exchanger grill w/fan, \$25. Atkins, 298-5762.

SEARS DP EXERCYCLE, \$65. Patrick, 265-4569.

SPOTMATIC II w/four lenses, bellows, and slide copies, \$350; Panasonic video camera; Hitachi portable VCR, many extras, \$900. Cochrell, 298-2068.

PIONEER AM/FM/CB w/squelch, PA, signal meter, standby, balance, tone, 40-ch. digital display, used two years, \$65. Magnuson, 821-5330.

WASHING MACHINE, 1984 Whirlpool. Jones, 299-4776.

ART OR DRAFTING TABLE w/stool, \$75. Pfeiffer, 299-3951.

SEWING MACHINE, 10-stitch Kenmore, used once, w/carrying case, \$125 OBO. Williams, 299-8986.

AUTHENTIC CORONADO MISSION COUCH, \$35; Zenith 25" color TV, working condition, \$50; twin bed frame, \$10; twin headboard, \$10. Carson, 281-5115.

ZENITH PC, 384K memory serial communications and printer ports, two 360 mb floppy disk units, \$1395. Key, 296-0420.

MAGIC CHEF REFRIGERATOR, 16-cu. ft., almond color, with ice maker, used four months. Palmer, 294-7656.

### TRANSPORTATION

TWO MOTORCYCLES: XL350, 1975, \$350; 305 Dream 1969, \$200. Two women's bicycles: 5-spd. Cruiser, \$50; single-spd., \$20. Gronseth, 299-3540.

'82 MAZDA 626, 4-dr., 5-spd., AC, PS, cruise, AM/FM stereo, one owner, \$4650 OBO. Turpin, 281-5933.

'75 HONDA, good tires, needs some work but operable, \$450. Disch, 291-0901.

BICYCLE, LADIES 26", 10-spd., ALL PRO, \$75. Young, 884-7836.

BICYCLES: 20" little girl's, \$15; 26" girl's 10-spd., heavy frame, chrome fenders, \$35. Asprey, 296-6673.

'81 PONTIAC Phoenix, 42K miles, AC, cruise, AM/FM cassette, sound insulation, Michelin radials, two-tone paint, \$3200. Henderson, 292-8574.

'78 RABBIT, silver, one owner, Sony cassette, AT, sunroof, 84K miles, \$1750. Lloyd, 822-8567.

'64 VW BUG, 12V, low mileage on rebuilt engine, no rust, \$800 OBO. Edmonds, 884-5974.

'49 CHEV. 1/2-ton, 6-cyl., \$1295 OBO. Gallegos, 247-9832.

'84 FORD LTD, V6, AC, AM/FM cassette (premium), intermittent wipers, power locks, tilt wheel, 12.5K miles. Lemen, 293-3487.

10-SPD. MEN'S BIKE, 26" Schwinn Sportabout, \$70 OBO. Arenholz, 298-1724.

'77 DODGE Monaco, AC, PS, PB, cruise control, 62K miles, \$1600 OBO. Payne, 299-5966.

TWO 10-SPDS.: Nishiki Sebring, \$99; Liberty Phoenix, \$45. Ulibarri, 883-2848.

'84 NISSAN King Cab 4WD pickup, PS, PB, AC, AM/FM tape, plus many extras, 30K miles, \$9500. Guay, 294-7792, leave message.

'84 HONDA Accord LX, 2-dr., hatchback, 5-spd., cruise, AC, AM/FM stereo cassette. Dietz, 836-0760.

'85 NISSAN 4X4 King Cab, \$2000 plus take over payments, OBO by 12/22. Sanchez, 265-9633.

'73 CORVETTE, loaded w/all options, yellow w/tan leather interior, 62K miles, asking \$10,750. Laird, 293-7696.

'74 CORVETTE Stingray, 350, AT, driven every day, bright orange exterior, mag wheels, asking \$7500. Gentry, 298-3574.

'79 CHEV. Silverado, 1/2-ton 4WD, AT, AC, PB, PS, 62K miles, \$5500. Sheldon, 293-0467.

'51 CHEV. pickup, 327 V8, 350

automatic, new from ground up, \$2800. Netz, 281-3607.

'84 KAWASAKI GPZ550, stock production road racer, 1.2K miles, extra fairing, Dunlop Sport Elites, some cosmetic damage, \$2100 OBO. Bernard, 831-4114.

BOY'S 20" dirt bike. Riney, 299-1457.

'65 GMC pickup, LWB, 4-spd., V6, \$450. Smith, 298-8227.

HONDA MOPED w/helmet, 1.985K miles, \$250. Bazar, 898-1467.

'72 CHEV. pickup, new paint job, \$3700; '76 Toyota, 4-door, \$1200. Hunter, 865-5745.

BICYCLE, 20" chrome Roger Decoster w/red seat, pads, tires and Tuff II mags, \$60. Byers, 298-8326.

'78 FORD F100 pickup, AC, PS, 4-spd., AM/FM stereo cassette, 80K miles, \$1000 below book, \$2600. Key, 298-7988.

### REAL ESTATE

TOWNHOME, 1200 sq. ft., 2-bdr., 2-bath, near Old Town, assumable low equity loan. Arfman, 242-5795.

SE HEIGHTS, 5-bdr., available in March, 5 minutes from Sandia. Stromberg, 255-6131.

CEDAR CREST, 4-bdr., den, 2 fireplaces, 1-1/2 acres, paved road, stables, solar, 20 min. to Base, \$119,500. Lomonaco, 888-3500 or 281-5898.

NE HEIGHTS, near Eisenhower Middle School, 3-bdr., 1-3/4 baths, Wood Bros. tri-level, assumable, \$94,900. Whitehurst, 299-0153.

3-BDR. TOWNHOUSE, 1800 sq. ft. w/garage, patio, pool, tennis, clubhouse, RV parking, lawn care included. Cropp, 296-1877.

RIO GRANDE RESORT HOUSE, 3-bdr., sunroom, 2 baths, 3 riverfront lots, lower interest rates, price reduced, \$64,000. Carson, 281-5115.

'64 10'x55' MOBILE HOME, remodeled, 2-bdr., 1-3/4 bath, appliances + washer/dryer, partially furnished, 5 min. from SNLA, \$7200. Marquez, 293-2895.

### WANTED

SLIDE TRAYS for Argus projector. Kurowski, 881-1859.

SMALL UPRIGHT FREEZER, good condition, reasonable price. Goodwin, 294-6702.

SHOP MANUAL for 1978 Dodge van. Hall, 298-8617.

METAL regular 8mm movie reels, 400' size. Keepports, 881-8066.

BABYSITTING, experienced 12-year-old desires work. Kelly, 298-2956.

RESPONSIBLE TEENAGER to do yard work, rake leaves, etc., wages negotiable. Laird, 293-7696.

TO BORROW: album or cassette of Kitty Wells singing "Your Cheatin' Heart" to record on cassette. Magnuson, 821-5330.

TRADE two NM symphony tickets on 1/18/86 for two tickets on either 3/7/86 or 3/8/86. Marrs, 821-5144.

BETA VCR, cable-ready w/wireless remote. Will trade my VHS, cable-ready w/wireless remote. 9-event/14-day programmable. Robinson, 255-0114.

### SHARE-A-RIDE

RIDE WANTED from Alameda. Cohoe, 898-8937.

## Light and Snow Inspired Artist

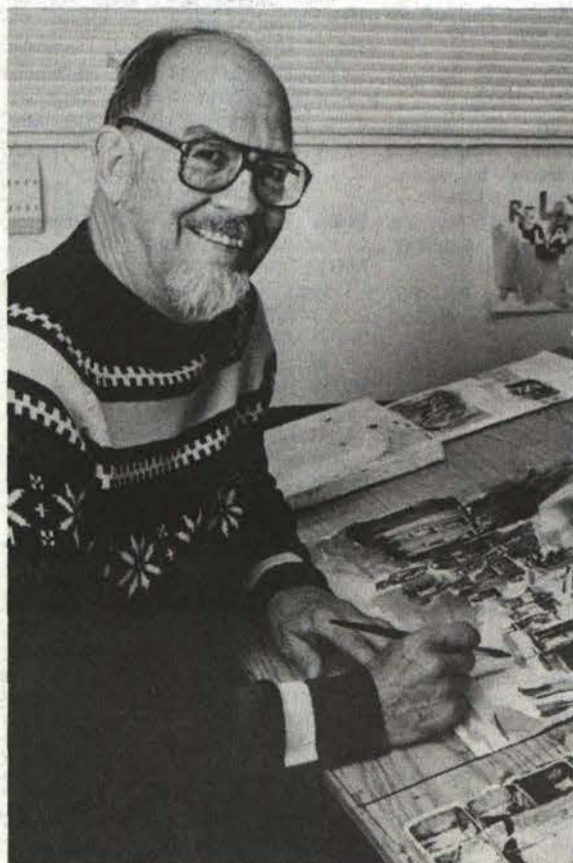
The watercolor reproduced on this year's Christmas edition of LAB NEWS was done by Doug Ballard, who retired from the Labs in 1983. The scene shows the original Our Lady of Guadalupe church on Griegos Road in the North Valley after a heavy snowfall. Doug calls it "Clearing Skies."

"Occasionally, I come across a scene that I find truly inspirational," says Doug. "This was one of those times. The storm front had passed, and the sun broke through the clouds. The sunlight flowing from the roof on down the adobe wall and out the path to the church created a natural passage for the eye to follow. I was in the right place at the right time."

The watercolor, painted during the winter of 1984, took second prize in the annual New Mexico Watercolor Society show in September that year. Our Lady of Guadalupe church, now a private home, dates back to the time when the old village of Los Griegos was a thriving community.

Though he has tried other media, Doug prefers watercolor because of the effects he can get with it. And he's partial to winter scenes. "There's a lot more color contrast at that time of year, for one thing. One of my favorite sites, Taos Pueblo, is most beautiful during the winter months."

Doug's work has taken prizes in many regional shows, and his art is exhibited in galleries in Albuquerque, Taos, Ruidoso, Carlsbad, and Arlington, Tex. His work also appeared on the LAB NEWS cover in December 1981. He paints "almost" full time now, though he also serves as a nondestructive testing (NDT) consultant from time to time. (He was supervisor of the NDT division at Sandia before his retirement after 35 years at the Labs.)



DOUG BALLARD, Christmas cover artist



Merry Christmas &  
Happy New Year from the  
LAB NEWS STAFF!

*Phyllis, Denise, Barry, & Bruce*

 **LAB NEWS**